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Claims

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1. A communication system, comprising a mobile switching system (MSC) and a first subsystem (BSS) comprising one or more base stations (BTS) for communicating with mobile terminals (MS) via an air interface; and
  - 5        a second subsystem (WIO, BTS) comprising one or more base stations (BTS) for communicating with the mobile terminals (MS) via an air interface, said second subsystem (WIO, BTS) being accessible by a first group of mobile subscribers of the communication system, and comprising:
    - 10        one or more first network elements (AGW; IGW) for transforming signals from the mobile switching system (MSC) into data packets of the second subsystem (WIO, BTS) and for transforming data packets from the second subsystem (WIO, BTS) into signals of the mobile switching system (MSC),
    - 15        one or more second network elements (IMC), connected with one or more base stations (BTS) of the second subsystem (WIO, BTS), for transforming signals from the base station (BTS) of the second subsystem (WIO, BTS) into data packets of the second subsystem (WIO, BTS) and for transforming data packets from the second subsystem (WIO, BTS) into signals to the base station (BTS) of the second subsystem (WIO, BTS);
    - 20        means (IP, LAN) for delivering data packets in the second subsystem (WIO, BTS) according to a network address assigned to the first and the second network elements of the second subsystem (WIO, BTS); and
    - 25        means (ILR, GK) for mapping a number identifying a mobile subscriber in the communication system to a network address of the second subsystem (WIO, BTS) when the mobile terminal of the mobile subscriber is able to communicate with a base station (BTS) of the second subsystem (WIO, BTS).
2. A communication system according to claim 1 wherein said second subsystem (WIO, BTS) comprises means (GK, ILR) for routing a call between subscribers of the first group within the second subsystem (WIO, BTS), as a response to each of the numbers identifying said mobile subscribers in the communication

system having a mapping to a network address of the second subsystem (WIO, BTS).

3. A communication system according to claim 1 wherein said second subsystem  
5 (WIO, BTS) comprises a subscriber register (ILR) for storing location information of a subscriber of the first group, said location information comprising data about the network address of the network element connected to the base station the mobile terminal of the subscriber is currently able to communicate with.

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4. A communication system according to claim 1 wherein said means (IP, LAN) for delivering data packets in the second subsystem (WIO, BTS) comprise an IP Protocol network.

15 5. A communication system according to claim 4 characterised by the first group of mobile subscribers comprising employees of an office given an access to said IP Protocol network.

6. A communication system according to claim 1 wherein said means (IP, LAN) for  
20 delivering data packets in the second subsystem (WIO, BTS) support H.323 standard.

7. A communication system according to claim 2 wherein said means (GK, ILR) for  
25 routing a call between subscribers of the first group within the second subsystem (WIO, BTS) are arranged to page locally calls originating from or terminating to a terminal of a subscriber of the first group.

8. A communication system according to claim 2 wherein said means (GK, ILR) for  
routing are arranged to route the call to the mobile switching system (MSC), as  
30 a response to not fulfilling either of the following conditions: each of the subscribers belong to the first group, a number identifying each of said

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subscribers in the communication system have a mapping to a network address of the second subsystem (WIO, BTS).

9. A network element (ILR) in a communication system, comprising a mobile switching system (MSC) and

5        a first subsystem (BSS) comprising one or more base stations (BTS) for communicating with mobile terminals (MS) via an air interface; and

10      a second subsystem (WIO, BTS) comprising one or more base stations (BTS) for communicating with the mobile terminals (MS) via an air interface, said second base station subsystem (WIO, BTS) being accessible by a first group of mobile subscribers of the communication system, and comprising;

15      one or more first network elements (AGW; IGW) for transforming signals from the mobile switching system (MSC) into data packets of the second subsystem (WIO, BTS) and for transforming data packets from the second subsystem (WIO, BTS) into signals of the mobile switching system (MSC),

20      one or more second network elements (IMC), connected with one or more base stations (BTS) of the second subsystem (WIO, BTS), for transforming signals from the base station (BTS) of the second subsystem (WIO, BTS) into data packets of the second subsystem (WIO, BTS) and for transforming data packets from the second subsystem (WIO, BTS) into signals to the base station (BTS) of the second subsystem (WIO, BTS);

25      means (IP, LAN) for delivering data packets in the second subsystem (WIO, BTS) according to a network address assigned to the first and the second network elements of the second subsystem (WIO, BTS); and

30      said network element (ILR) comprising a number of interfaces to collect and store permanent and variable subscriber information of a subscriber of the first group from the mobile switching system (MSC) and the second subsystem (WIO, BTS).

30      10. A network element (ILR) according to claim 9 wherein said variable information comprises the network address of the network element (IMC) of the

second subsystem (WIO, BTS) connected to the base station (BTS) the mobile terminal (MS) the subscriber is currently able to communicate with.

11. A network element (ILR) according to claim 10 wherein the element (ILR) is

5 arranged to collect and store the subscriber information at least during signalling between the base station (BTS) and the mobile terminal (MS) for location update of said subscriber to the second subsystem (WIO, BTS).

12. A network element (ILR) according to claim 9 arranged to send, as a response

10 to a query from another network element (GK), said subscriber information.

13. A network element (ILR) according to claim 9 said interfaces comprising a

MAP interface between the network element and at least one of the following:  
Home Location Register (HLR) of a GSM network, Visitor Location Register  
15 (VLR) of a GSM network.

14. A network element (GK) in a communication system, comprising a mobile switching system (MSC) and

20 a first subsystem (BSS) comprising one or more base stations (BTS) for communicating with mobile terminals (MS) via an air interface; and

a second subsystem (WIO, BTS) comprising one or more base stations (BTS) for communicating with the mobile terminals (MS) via an air interface, said second base station subsystem (WIO, BTS) being accessible by a first group of mobile subscribers of the communication system, and comprising;

25 one or more first network elements (AGW; IGW) for transforming signals from the mobile switching system (MSC) into data packets of the second subsystem (WIO, BTS) and for transforming data packets from the second subsystem (WIO, BTS) into signals of the mobile switching system (MSC),

30 one or more second network elements (IMC), connected with one or more base stations (BTS) of the second subsystem (WIO, BTS), for transforming signals from the base station (BTS) of the second subsystem (WIO, BTS) into data packets of the second subsystem (WIO, BTS) and for transforming

- data packets from the second subsystem (WIO, BTS) into signals to the base station (BTS) of the second subsystem (WIO, BTS);
- means (IP, LAN) for delivering data packets in the second subsystem (WIO, BTS) according to a network address assigned to network elements of the second subsystem (WIO, BTS); and
- said element comprising means for querying from another network element (ILR) the network address of the network element (IMC) of the second subsystem (WIO) connected to the base station (BTS) the mobile terminal (MS) the subscriber is currently able to communicate with.
- 10 15. A network element according to claim 14 wherein the network element is arranged to implement functions of a H.323 Gatekeeper.
- 15 16. A network element (GK) according to claim 14 characterised by means (116) for mapping a number identifying a mobile subscriber in the communication system to a network address of the second subsystem (WIO) when the mobile terminal of the mobile subscriber is able to communicate with a base station of the second subsystem (WIO, BTS).
- 20 17. A network element according to claim 14 characterised by means (116) for routing a call between subscribers of the first group within the second subsystem (WIO, BTS), as a response to each of the numbers identifying said mobile subscribers in the communication system having a mapping to a network address of the second subsystem (WIO, BTS).
- 25 18. A method for communicating in a communication system, comprising a mobile switching system (MSC) and
- a first subsystem (BSS) comprising one or more base stations (BTS) for communicating with mobile terminals (MS) via an air interface; and
- 30 a second subsystem (WIO, BTS) comprising one or more base stations (BTS) for communicating with the mobile terminals (MS) via an air interface, said

second base station subsystem (WIO, BTS) being accessible by a first group of mobile subscribers of the communication system, said method comprising;

transforming signals of the mobile switching system (MSC) and the base station (BTS) of said second subsystem into data packets of the second subsystem (WIO, BTS) and for transforming data packets of the second subsystem ((WIO, BTS) into signals of the mobile switching system (MSC) and the base station (BTS) of said second subsystem,

delivering data packets in the second subsystem (WIO, BTS) according to network addresses assigned to network elements of the second subsystem (WIO, BTS); and

mapping a number identifying a mobile subscriber in the communication system to a network address of the second subsystem (WIO) when the mobile terminal of the mobile subscriber is able to communicate with a base station of the second subsystem (WIO, BTS).

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19. A method according to claim 18 further comprising routing a call between subscribers of the first group within the second subsystem (WIO, BTS), as a response to each of the numbers identifying said mobile subscribers in the communication system having a mapping to a network address of the second subsystem (WIO, BTS).

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